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APPLICANT : YOKOGAWA HOKUSHIN ELECTRIC CORP;

INVENTOR : SUGIYAMA SUNAO;

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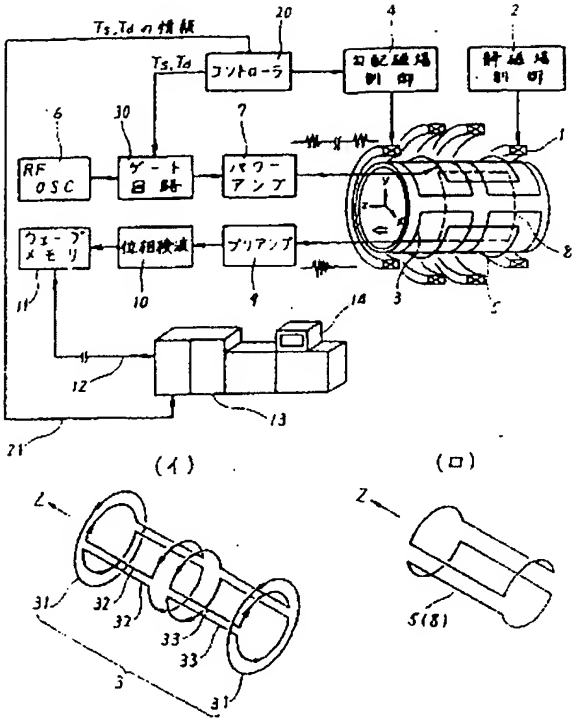
TITLE : METHOD AND APPARATUS FOR INSPECTION BY MEANS OF NUCLEAR MAGNETIC RESONANCE



ABSTRACT : PURPOSE: To perform the high speed collection of NMR data, by impressing the gradient magnetic field for satisfying a prescribed condition before and after 180° pulse impression.

CONSTITUTION: Current is passed through a coil 1 for static magnetic field from a control circuit 2 to give a static magnetic field H_0. Current is passed through a coil 31 for Z gradient magnetic field from a controller 20 through a control circuit 4, 90° X pulse is given while giving Z gradient magnetic field G_z^+ to select and excite a body to be inspected. A magnetic field G_z^- is impressed successively to G^+ impressing. Next, magnetic fields G_x, G_y are impressed for a prescribed time. Next, the magnetization is turned over by 180° pulse through a gate circuit 30. Above operations are repeated so that the fields G_x, G_y before and after 180° pulse impressing satisfy next equation. $g_{xp} \times t_{mp} = g'_{xp} \times t'_{mp}$, $g_{yp} \times t_{mp} = g'_{yp} \times t'_{mp}$, p=1~n, n is number of 180° pulse, g, g' are intensity, x y are phase of RF pulse, t_{mp}, t'_{mp} are impressing time of gradient magnetic field before and after 180° pulse impressing. Thereby, high speed collection of NMR data is made possible.